

R E M A R K S

I. Introduction

In response to the Office Action dated January 27, 2006, Applicants have amended claims 10 and 17-19, and added claims 22-29 in order to clarify the intended subject matter of the invention. Claim 21 has been cancelled. Support for amendments to claims 10 and 17-19 may be found, for example, on page 9, lines 9-13 of the specification. No new matter has been added.

Please note a Request for Continued Examination (RCE) is being filed concurrently with this Amendment.

Please note that an Information Disclosure Statement is being filed concurrently with this Amendment. Applicants request that the IDS be considered and the PTO-1449 form be initialed and returned to Applicants.

For the reasons set forth below, Applicants respectfully submit that all pending claims are patentable over the cited prior art references.

II. The Rejection of Claims 7, 9, 10, 17-19 And 21 Under 35 U.S.C. § 103

Claims 7, 9, 10, 17-19 and 21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Neto (USP No. 5,634,497) in view of Salugsugan (USP No. 5,486,265), Adams (USP No. 5,755,614) or Hayden (USP No. 6,015,499) and further in view of JP 10-152976A. Applicants respectfully submit that Neto, alone or in combination with Salugsugan, Adams, Hayden or JP 10-152976A, fails to render the pending claims obvious for at least the following reasons. As claim 21 has been cancelled, the rejection of claim 21 is now moot.

With regard to the present invention, claim 7 recites, in-part, a system for polishing a substrate using CMP, comprising a tube for supplying the slurry wherein a tube, which substantially does not contain fine particles for reinforcing the strength of the tube, is used as a tube for supplying the slurry, and wherein the tube is a vinyl chloride type tube. Similarly, claim 10 recites, in-part, a tube-type slurry supply pump containing a tube for supplying a slurry during polishing, wherein at least an inner surface of the tube is formed of a vinyl chloride material, and claim 17 recites, in-part, wherein at least an inner surface of the tube is formed of a vinyl chloride material.

It was alleged that it is old and well known to make the inner surface of a slurry supply hose from abrasion resistant material, and that it would have been obvious to combine JP 10-152976A, a method of improving the abrasion resistance of hardwood flooring by utilizing vinyl chloride, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use, and vinyl chloride is abrasion resistant. Despite the fact that the technology taught in JP 10-152976A is entirely different from the technology disclosed in any of the other cited prior art references or the present invention, and therefore is not related to the invention, this argument is unpersuasive.

Even a casual reading of the claims and the specification of the present invention would lead one to the conclusion that, while abrasion resistance may be a desired property of the slurry supply tube to give it long life, it is not the goal or even the main inventive step of the present invention. As evidence of this, the Applicants direct the Examiner to the passage on page 12, which states,

“Since a tube for the tube-type slurry supply pump has been required to have as a long life as possible, rubber type tubes with higher mechanical strength than those of other types of tubes have been presently used. Moreover, rubber type tubes are low in cost and no adverse effect resulting from rubber type tubes has been yet reported. Therefore, rubber type tubes are still widely used today.”

Thus, the Applicants were clear that if long life were the only goal of the invention, then rubber tubes would have been preferable to any other types of tubes. Thus, long-life of the tube was not a goal of the present invention. The goal of the present invention, hinted at in the Title of the invention, was a polishing method for a semiconductor device. Thus, the Applicants state, on page 13 of the specification:

“As has been described, the present inventors found problems in using a rubber type tube. Thus, *in order to prevent the generation of scars and scratches on a wafer surface*, the inventors have decided to use a tube (specifically, a vinyl chloride type tube) which substantially does not contain fine particles for reinforcing the strength of the tube, *even if life properties of the tube are reduced.*”

Thus, the reason for the use of vinyl chloride is disclosed in the above cited paragraph, which is the prevention of scars and scratches on a wafer surface, NOT the improvement of life properties of a tube.

The Applicants further show the unexpected results of using a vinyl chloride coated tube as opposed to a rubber tube in the following paragraph on page 13, which states:

“As can be seen from the examination results of scratches on a wafer surface shown in FIG. 9, scratches on the surface of a

wafer immediately after tube exchange could be reduced from several hundred scratches per wafer to about 10 scratches per wafer by changing a rubber type tube to a vinyl chloride type tube.

Moreover, FIG. 10 is a graph showing product yield when the rubber type tube and the vinyl chloride type tube were actually used in a CMP process. That is to say, the results shown in FIG. 10 indicate the effect of improving product yield achieved by using the vinyl chloride type tube. As can be seen from FIG. 10, actual product yield was improved by 10%-20% at most by changing the rubber type tube to the vinyl chloride type tube."

Thus, it is readily apparent, given the reasoning behind the use and the unexpected results arising from the use of vinyl chloride in tube material, JP 10-152976A does not in anyway, teach or suggest the use of vinyl chloride to make a slurry tube having the scratch reducing effects and product yielding effects described in the present invention. Accordingly, the allegation that the use of vinyl chloride in the present invention was obvious because JP 10-152976 taught that vinyl chloride is abrasion resistant is simply incorrect, because the Applicants have demonstrated that it is well known that rubber is superior to vinyl chloride for use as a reducer of abrasion resistance. Moreover, the proposed combination of JP 10-152976A with the cited prior art references is improper, as the Examiner has shown no evidence or suggestion to combine JP 10-152976A with the cited prior art references in order to reduce scratches on silicon wafer chips.

A statement that modifications of the prior art to meet the claimed invention would have been well within the ordinary skill of the art at the time the claimed invention was made because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some

objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). Thus, the Examiner's allegation that one of ordinary skill in the art would have found it obvious to make the tube out of vinyl chloride and therefore obvious in view of the above cited references is invalid because there is no suggestion to combine the above cited references.

Furthermore, in order to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 180 USPQ 580 (CCPA1974). As neither Neto, Salugsugan, Adams, Hayden nor JP 10-152976A disclose that the tube for supplying the slurry is a vinyl chloride type tube, it is submitted that Neto, alone or in combination with Salugsugan, Adams, Hayden or JP 152976A, does not render claims 7, 10 and 17 obvious. In view of this, it is respectfully requested that the § 103 rejection of claims 7, 10 and 17 and any pending claims dependent thereon be withdrawn.

III. All Dependent Claims Are Allowable Because The Independent Claim From Which They Depend Is Allowable

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claims 7, 10 and 17 are patentable for the reasons set forth above, it is respectfully submitted that all pending dependent claims are also in condition for allowance.

IV. Conclusion

Having fully responded to all matters raised in the Office Action, Applicants submit that all claims are in condition for allowance, an indication for which is respectfully solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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Date: May 30, 2006